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GRAMMATICAL CORRESPONDENCE.

LETTER I. N—— TO A——.

L——, DECEMBER, 1858.

MY DEAR A.:—Many thanks for your kind letter,\* and for the full illustration which it presented of your method of addressing grammatical analysis to the eye. There is now no need that you should answer my question in respect to the advantages of this method; for, since receiving your letter, I have made trial of the method in my school, and from the result feel quite prepared to answer the question for myself.

From the exceeding simplicity of the mode of arrangement, my pupils have already become quite familiar with it; and there is no hyperbole in saying, that its introduction has given a new life to the study of grammar in my school. The eye is attracted by the military order of the words, looking so much like soldiers upon the parade ground, and by the various positions, according to their rank, of generals, colonels, majors, captains, corporals, and privates. Even those who have not engaged in the study of grammar, are curious to know the meaning of the different postures in this "dance of the words," as one of my little girls called it. When a class in parsing are writing upon the blackboard, I observe many an eager eye carefully following and scanning their work, so that other lessons sometimes even suffer through the attractiveness of

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these novel word-pictures. And when the analysis of a sentence has been left upon the board after school, I have often found a group of my younger scholars gathered around, and intently tracing out the various parts of the sentence, asking each other why they are placed here or there, and reading them so as to restore the *disjecti membra poetæ* to their proper order.

"Why, Mr. N.," said one of my boys, a great lover of play, "the words look just as if they were arranged for a game of ball. This fellow," said he, pointing to the predicate, "is to give ball to that one," pointing to the subject; "that little fellow," pointing to the connective, "stands behind the bat-boy, to catch him out if he can; while these," referring to the modifiers of the predicate, "are tending out to pick up the ball and throw it back." How far they have introduced grammatical phraseology into their sports, I cannot tell; but I happened, yesterday, to hear one of the captains in a game of ball call out to some of his subordinates, "Halloo, there, you modifiers, you must be more attentive to your work, or we shall lose the game." How much truth there is in those familiar words of Horace:

"Segnius irritant animos demissa per aurem,  
Quam quæ sunt oculis subjecta fidelibus."

"What we hear

With weaker passions will affect the heart,  
Than when the faithful eye beholds the part."—*Francis, Trans.*

But, to return from the ball-ground, I find that my pupils in grammar have now a much more definite aim in the preparation of their lessons than they used to have. The question comes before them in respect to each word, "Where shall this word be placed?" which is only another form for the question, "What is the grammatical office of this word, and what are its relations to the other words of the sentence?" Nor can this question be left undetermined, as formerly, to be talked about and settled at the recitation, for every word must be brought in with its assigned position on the slate. And this position cannot be a *place in general*, like the "general idea of a Lord Mayor," in the papers of Martinus Scriblerus, but must be some particular place, according to the best judgment of the pupil. This judgment may not be right, but it must be exerted.

I find another great advantage in the ease and rapidity with which I can ascertain the success of each pupil in study. By a half-minute's glance over his slate, I can see whether he understands the offices and relations of fifty words, and can detect his misapprehension of any one of them. How much time this would have occupied in the old method of merely oral analysis. Our methods of recitation are quite various. I sometimes write the analysis of the sentences composing the lesson upon the black-board, and let each pupil correct his own work by mine. Sometimes we secure the great benefit of mutual criticism by an interchange of slates, each scholar marking what he supposes to be errors upon the slate which he has received. At another time, the whole or a part of the class are sent to the black-board to write analyses of different parts of the lesson, which we then examine and criticise together. And I can assure you, that some of my scholars are becoming very sharp grammatical critics.

At the same time, we by no means omit oral analysis and explanation, or old-fashioned parsing, which it seems to me that some, in these latter days, unduly disparage. If analysis is the guide through the forest of words, without which we should lose our way, parsing describes minutely each tree in our path. If analysis ascends a height and takes a panoramic view of the whole landscape around, parsing, in its humble but no less useful vocation, visits each spot in the scene, and with keen eye inspects every object to be found there. It is the office of analysis to describe the sentence as a whole, and to resolve it into its parts; of parsing, to describe these parts. The complete study of the sentence manifestly requires alike the work of both. If analysis is the telescope, parsing is the microscope; and both instruments are indispensable to him who would acquaint himself aright with the universe of language.

I must not omit to say, that I myself, no less than my pupils, have found great advantage in your method, from its so presenting at a glance the whole structure of a complicated sentence. I could before study out this structure, and feel that I understood it; but I am conscious that my view of it is now more clear, distinct, connected, and comprehensive. In a word, the sentence is pictured out before my eye.

But enough of this. I fancy you sitting in your arm-chair, and reading my letter with arched eyebrow, and a gentle curl of the lip, that says in silent expression, "As if I did not know all this before." So I will proceed without further preamble, to the special object of this letter. My cousin S., who visited your school last fall, tells me that you have some briefer method of representing or "symbolizing" the general structure of a sentence, and also a convenient mode of indicating the precise form according to which your pupils are to compose sentences. He has so little of the schoolmaster's eye, that he can give me no clear description of these methods. All that he remembers is, that there were lines and columns of letters, and figures, and squares, and triangles, and circles, which looked as unintelligible as possible, but which your scholars seemed to be as familiar with, as with the road to school. Will it be taxing your good nature too severely, to ask you to describe these to me with the same minuteness which you kindly employed in your last letter; and also to apply them to some Brobdingnagian sentences, like those, for example, which occur in Milton's description of the Garden of Eden, and Lord Jeffrey's criticism of Hazlitt? You would thus confer a great favor on

Your faithful friend,

N.

LETTER II. A—— to N——.

S——, JANUARY, 1859.

DEAR FRIEND N.:—"In me is no delay." I am happy to do at once all you ask, for I am desirous of laying you under as heavy a sense of obligation as possible. And yet I feel that really the obligation is here much the more on my side. However, we will have no quarrel on this point.

You ask me, in respect to our method of representing by symbols the general structure of sentences. How much of the right that comes from original invention we can claim in this method, I am now unable to say. I think it probable, although from the lapse of time I am not certain, that we received the first suggestion of it from a German work on grammatical analysis, which I owned for a time, but gave several years ago to a most estimable friend, who is also one of the ablest grammarians of our country. A method akin



to ours, appears in a work just issued by that veteran and master in philology, Professor Gibbs, of Yale College ; and was reprinted, from the advance sheets of this work, in the " Massachusetts Teacher " for October last. But whatever may have been the origin of this method, we find great advantages in it from the rapidity and clearness with which it enables us to present the general structure of a very long sentence, — even of one which should reach the utmost limits of those that flow with such eloquence from the lips of our favorite forensic orator.

You remember the signs prefixed in my last letter to the several clauses of the sentences that were analysed. Independent sentences were indicated, you remember, by capital letters, A, B, C, etc. ; clauses immediately subordinate to these, or subordinate clauses of the first grade by the numerals, 1, 2, 3, etc. ; clauses immediately subordinate to the last mentioned, or subordinate clauses of the second grade, by the small letters, a, b, c, etc. ; subordinate clauses of the third grade by the Italics, *a, b, c*, etc. Subordinate clauses of the fourth grade we sometimes represent by double letters, and sometimes by the last letters of the alphabet, z, y, x, etc. In symbolizing the general structure of the sentence, we prefer the latter mode. Subordinate clauses of the fifth grade we then represent by the same letters in Italic type, *z, y, x*, etc. ; those of the sixth grade by the middle letters of the alphabet, m, n, o, etc. ; those of the seventh grade by the same letters in Italic type, *m, n, o*, etc. If we need to go any farther, which *very rarely* occurs, we leave the common alphabet and adopt any other symbols that we please.

You remember also our mode of indicating substantive clauses by a square or right angle, or the letter *s* ; adjective clauses by a circle, or the letter *j* ; adverbial clauses by a triangle, or an acute angle, or the letter *v*.

All that we now need to indicate the general structure of a compound or complex sentence, is to take the signs belonging to the several clauses, and to arrange those of the first class in a line, just in the order in which the sentences which they represent, or any parts of these sentences, occur, placing over them those of the second class. Let us select, for illustration, the following story in Dr. Johnson's story of Obidah, from which I have before quoted : — " When the repast was over, ' Tell me,' said the hermit, ' by what chance

thou hast been brought hither. I have been now twenty years an inhabitant of the wilderness, in which I never saw a man before.' Obidah then related the occurrences of his journey without any concealment or palliation." The analysis of this paragraph would thus be represented, according to the method described in my last : —

CONN.	SUBJ.	PRED.
A.	Hermit the	said (1.) $\triangle$ (2, 3.) $\square$
1. [When]	Repast the	was over when
2.	<i>Thou</i>	tell to me (a.) $\square$
a. [What]	Thou	hast been brought hither by chance what
3.	I	have been inhabitant and of wilderness the (b.) $\circ$
		now for years twenty
b. [Which]	I	saw man a in which never before
B.	Obidah	related occurrences the of journey his then without { concealment { or palliation. any

The letters or figures which are here prefixed to the several clauses, arranged in the order in which these clauses actually occur in the paragraph, and surmounted by the signs which denote the offices of subordinate clauses, form a compound symbol indicative of the general character of the paragraph : —

$$\begin{array}{c} \triangle \square \square \square \circ \\ 1, 2 A a ; 3 b. B. \end{array}$$

Between the parts of this compound symbol we employ, you observe, marks of punctuation so far as may be requisite to prevent mistake or doubt respecting the relations of the sentences. Thus the points after 1 and a show that clause a depends only on clause 2, and not on 1 or 3 ; and the point after b shows that clause 3 is subordinate to A, and not to B. The symbol shows us at a glance that the paragraph commences with an adverbial clause, subordinate to the first independent sentence ; that this is followed by a substantive clause, subordinate to the same ; that the first independent sentence occurs next in order, followed by a substantive clause, dependent, as it is marked by a small letter, not on A, but on clause 2 ; that we have next a second substantive clause dependent on A, followed by an adjective clause subordinate to this ; and that the paragraph closes with a second independent sentence, which has no subordinate clauses. The first period in the paragraph is complex, the last simple.

When sentences are compound, we distinguish the several co-ordinate members by the use of accents, thus, A, A', A'', A''', etc., (reading these signs, as in Mathematics, "A," "A prime," "A second," "A third," etc.) We often make the same distinction when sentences have compound predicates, or other prominent parts of the sentences compound, especially if the co-ordinate portions are separately affected by subordinate clauses. For example, we might thus symbolize the following stanza from Percival's Ode to Seneca Lake : —

"The waves along thy pebbly shore,  
As blows the north wind, heave their foam ;  
And curl around the dashing oar,  
As late the boatman hies him home."





- A. "Southward through Eden went a river large,  
 A', A''. Nor changed his course, but through the shaggy hill  
 1. Passed underneath ingulfed; for God had thrown  
 That mountain as his garden-mould high raised  
 a. Upon the rapid current, which, through veins  
 Of porous earth with kindly thirst up-drawn,  
 a'. Rose a fresh fountain, and with many a rill  
 a''. Watered the Garden; thence united fell  
 a'''. Down the steep glade, and met the nether flood,  
 a. Which from his darksome passage now appears,  
 a'. And now, divided into four main streams,  
 Runs diverse, wandering many a famous realm  
 z. And country, whereof here needs no account;  
 z' z m. But rather to tell how, if art could tell,  
 z'. How from that sapphire fount the crisped brooks,  
 Rolling on orient pearl and sands of gold,  
 With mazy error under pendent shades  
 z''. Ran nectar, visiting each plant, and fed  
 n. Flowers worthy of Paradise; which not nice Art  
 n'. In beds and curious knots, but Nature boon  
 Poured forth profuse on hill, and dale, and plain,  
 m. Both where the morning sun first warmly smote  
 m'. The open field, and where the unpierced shade  
 B. Imbrowned the noontide bowers: thus was this place  
 A happy rural seat of various view."—*Par. Lost*, Bk. iv.

A A', A'' 1 a a' a'', a''' a, a' z, z' z m z', z'' n, n' m m': B.

This passage of Milton is remarkable as presenting to us subordinate clauses of no fewer than *seven* different grades.

- A. "In many points, Mr. Hazlitt has acquitted himself excellently,  
 A' 1. particularly in the development of the principal characters with  
 which Shakspeare has peopled the fancies of all English readers;  
 A'' (B) A'' 2. but principally, we think, in the delicate sensibility with which  
 A'' 3. he has traced, and the natural eloquence with which he has  
 2 3. pointed out, that familiarity with beautiful forms and images,—  
 a. that eternal recurrence to what is sweet or majestic in the simple  
 2 3. aspect of nature,—that indestructible love of flowers and odors,  
 and dews and clear waters, and soft airs, and sounds, and bright  
 b. skies, and woodland solitudes, and moonlight bowers, which are  
 2 3. the material elements of poetry,—and that fine sense of their  
 c. indefinable relations to mental emotion, which in its essence and  
 c'. vivifying soul, and which, in the midst of Shakspeare's most busy  
 and atrocious scenes, falls like gleams of sunshine on rocks and  
 a c'. ruins, contrasting with all that is rugged and repulsive, and remind-

- d. ing us of the existence of purer and brighter elements ;—which *he alone* has poured out from the richness of his own mind without effort or restraint, and contrived to intermingle with the play of all the passions and the vulgar course of this world's affairs, without deserting for an instant the proper business of the scene, or appearing to pause or digress from love of ornament or need of repose ; *he alone*, who, when the subject requires it, is always  
 d'' b z b. keen, and worldly, and practical, and who yet, without changing  
 b'. his hand or stopping his course, scatters around him, as he goes,  
 y. all sounds and shapes of sweetness, and conjures up landscapes of  
 b' b''. immortal fragrance and freshness, and peoples them with spirits of  
 b''''. glorious aspect and attractive grace, and is a thousand times more  
 x z. full of imagery and splendor than those who, for the sake of such  
 qualities, have shrunk back from the delineation of character or  
 z'. passion, and declined the discussion of human duties and cares."—  
*Ed. Rev.*, No. 56.

A, A' 1, A'' (B) A'' 2 A'' 3 2 3 a, 2 3 b, 2 3 c, c' a c'; d d', d'' b z b, b' y b' b''  
 b''', b''''  $\Delta$  O  
 x z z'.

Oh, what a sentence! Shall I ever catch my breath again? What a wild of tangled beauties and sweetnesses! How attractive, how charming, but how almost impenetrable! A volume crushed down, as by a hydrostatic press, into a single period! How it tasks, and yet how richly it rewards, the labor of the analyst, — affording a mental discipline akin, and not at all inferior, to that of solving a knotty question in algebra or the calculus!

You will notice that I have enclosed B in marks of parenthesis, because it denotes an independent sentence parenthetically introduced; and also, that clauses 2 and 3 become united, and that this union is indicated by braces placed above the figures which denote them.

You wish me also to describe to you our manner of indicating the form in which sentences are to be composed as grammatical or rhetorical exercises. You must take the responsibility, then, of the Alexandrine length of my letter.

If we wish merely to prescribe the general structure of the sentence, we write the symbol indicating that structure. If, for example, we desire a simple sentence, we write A, and our pupils bring in such sentences as, "Noah built the ark," "Your letter, dear Jane, was very welcome," etc. For four such sentences, following

each other by simple succession, that is, without connectives, we write A, B, C, D. For a compound sentence, consisting of three co-ordinate members, we write A, A', A''. For a complex sentence, containing a single subordinate clause following the principal clause, we write A 1, and indicate whether the subordinate clause is to be substantive, adjective, or adverbial, by placing the appropriate sign over the figure 1. According as this sign may be, we have then such sentences as, "Many believe that the planets are inhabited;" or, "I saw the bird that had built the nest;" or, "They watched till the star appeared."

Beginning with very simple exercises of this kind, we make them by degrees more complicated, and often prescribe words, phrases, or clauses, that must be introduced. For example, I might request my class to bring in each a sentence containing the words, "book" and "promised," and constructed upon the following plan:—

□△○    △□○ △  
A 1 a a 1, 2 b b b c.

One of my pupils might then, perhaps, bring in such a sentence as this:—"I wish that, when you have finished the book which you borrowed yesterday, you would return it; for I have promised James, that the friend whom he is expecting should have it when he comes."

But we often prescribe, especially in our more elementary exercises, the particular parts of which simple sentences, or the clauses of other sentences are to be composed. In such cases we commonly adopt the following very simple and expeditious method: Indicating the connectives, subjects, predicates, and independent words, by mere dashes in the appropriate places according to our mode of arranging sentences, we place beneath squares, circles, etc., to indicate what modifiers are to be added. Thus, after our pupils have made some progress in exercises of this kind, we might propose the following scheme for the second member of a compound sentence:—

CONN.	SUBJ.	PRED.	IND.
—	—	—	—
	○	△	□
	○	□	○
		○	
		□	
		○	
		△	

To meet this requisition, a sentence like the following might, perhaps, be presented : —“ And, my dear Friends, this thankful heart will never lose the remembrance of your very great kindness.”

Lest you should criticise a want of strict uniformity, let me say that in respect to the possessives, “ my,” “ your,” etc., we have, as yet, taken no part in the controversy that has prevailed, and have permitted our pupils, according to the grammars which they have previously studied, to mark them either as substantive pronouns in the possessive case, or as pronominal adjectives.

We sometimes vary or add to our signs, so as to mark the species of modifiers that are to be employed still more particularly ; but, as we have here no fixed usage, it does not seem at all worth while to specify the different expedients to which we have resorted. Similar and perhaps better methods will readily occur to your own mind. I think that I have not stated that we apply our system of arrangement and symbolizing to other languages, no less than to the English, and, as we believe, with no less advantage. Trusting that all these symbols will be to us, most of all, the symbols of an unbroken and ever strengthening friendship,

Yours, as ever,

A.

P. S.—In writing upon this subject, I should do injustice to my feelings, did I not direct your attention to the very ingenious system for addressing grammatical analysis to the eye, presented by Mr. Clark in his “ Grammar ” and “ Analysis of the English Language.” Many would, doubtless, prefer this to the simpler, less laborious, and, as it seems to us, more distinct method which we employ. You will certainly be much interested in examining it, and will be much struck with its originality and ingenuity ; while you will find his method and ours to be as unlike as it is possible that two methods should be, having the same end in view. In writing to you, I need not state that the passages which I have selected for illustration, are mostly found in the excellent Class Book for Parsing, by Messrs. Rickard and Orcutt.

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ONE swallow does not make a summer ; yet a pin in the cushion of a chair can make one spring.



## PHYSICAL EDUCATION.

I AGREE heartily with the views of the last month's editor, upon the importance of introducing bodily exercise into the schools, and I approve of all his reasons. If they could be read by every teacher, and by every school-committee man, as often as once a month through the present year, they might produce a very general action; and I know of nothing more likely to have that effect. My object in writing now, is to suggest the introduction of a set of exercises which may be performed by the children standing by their seats, and which, although less valuable than more active exercises in the open air, may be used as an excellent substitute. They should consist of various more or less rapid movements of the hands and arms.

I will mention a few; and any person who will try them for a while will find their value, and will easily devise others: 1. Place the hands back to back as high over the head as possible, and bring them down rapidly as far on each side as can be done without striking any object. Repeat this six times. 2. Stretch the hands as far forward as possible, palm to palm, and swing them thence horizontally as far back as possible, and repeat. Do the same with the hands back to back. 3. Bring the right hand firmly back to the height of the ear, and strike forward with the clenched fist, but not to the full length of the arm. Do this three times with the right hand, and as many with the left. 4. Strike down three times with the clenched fist of the right hand, then as many times with the left. 5. Make the right clenched fist revolve three times in as large a circle as possible. Do the same with the left.

Repeat all the exercises, except the last, with both hands at once.

This will be enough for a beginning. I have tried these exercises for many years, the first thing in the morning, and similar exercises with the lower extremities, to the very manifest advantage to my health and strength.

AUTOUS.

## ON SILENT CONSONANTS IN ENGLISH.

IN English, consonants are often found in the writing, which are omitted in the pronunciation:

This is owing to the fact, that such consonants were pronounced in the languages whence the English is derived, although they are now passed over in silence.

In examining this subject, it will be convenient and useful to consider words of Teutonic, Latin, and Greek origin, separately and in their order.

## I. WORDS OF TEUTONIC ORIGIN.

1. Teutonic words, commencing with *gn*, *kn*, or *wr*, which formerly pronounced both consonants, now pass over the first in English, as,

1. Gnarl, gnash, gnaw, gnat, gnein, gnu. Comp. no. 11.

2. Knead, knit, knock, know, knack, knag, knave, knee, knell, knife, knight, knoll.

3. Wrap, wreak, wrest, wrig, wring, write, writhe, wren, wretch, wright.

Note. The consonants *gn*, *en*, and *wr*, readily combine in Anglo-Saxon.

2. Teutonic *gh*, (and sometimes *ch*.) final and medial, which was formerly pronounced, is now silent: as, neigh, weigh, (so inveigh by a false analogy;) sigh, high, nigh; dough, though; eight, freight, weight; blight, bright, fight, flight, fright, height, knight, light, might, night, right, sight, tight; bought, brought, caught, fought, thought, drought; daughter, slaughter; neighbor; yacht.

Note. The Anglo-Saxon tolerates guttural sounds much more readily than the English.

3. In words of Teutonic origin, *b* is sometimes silent after *m*, *d* after *n*, and *n* after *l*: as, jamb, lamb, climb, limb, comb, crumb, dumb, numb, thumb; handsome; kiln.

4. In words of Teutonic origin, the semi-vowel *l* sometimes loses itself in the preceeding consonant or diphthong: as, half, talk, palm, halve; would, should, could, (so written after a false analogy.)

## II. WORDS OF LATIN ORIGIN.

5. *H* is silent at the commencement of some Latin words which have passed through the Norman French: as, *heir*, *honor*, *hour*.

6. In words of Latin origin, *b*, and sometimes *p*, is silent, when coming immediately before *t*: as, *debt*, *doubt*, *exempt*.

7. In words of Latin origin, *g* is sometimes silent when coming immediately before *n*; and *c*, when coming immediately before *t*: as, *reign*, *sovereign*, (so written after a false analogy;) *malign*, *sign*; *indict*, *viactuals*.

8. In words of Latin, and also of Greek origin, *n* final, is silent after *m*: as, *condemna*, comp. *condemnation*; *damna*, comp. *damnable*; *hymn*, comp. *hymnology*.

9. In words of Latin, and also of Greek origin, *c*, (and sometimes *ch*) after *s*, is silent before *e*, *i*, or *y*: as, *science*, *quiesce*, *sciagraphy*, *schism*.

10. *S* is silent before *l* in the Latin word *isle*, also *island*, (so written after a false etymology.)

## III. WORDS OF GREEK ORIGIN.

11. Greek words commencing with *pt*, *bd*, *phth*, *pn*, *mn*, *cn*, *gn*, *tm*, *ps*, and *ct*, in which both consonants were once pronounced, pass over, when Anglicized, the first of these consonants; as: *t* *tolémaic*; *b* *bdellium*; *ph* *phthisis*; *apophthegm*; *pneumatics*; *mnemonics*; *C* *Chossus*; *g* *gnostic*; *t* *tnesis*; *p* *psalm*; *ct* *ctenoid*.

12. In words of Greek origin, *ch* and *g* are silent, when left before a final *m*: as, *drachm*, comp. *drachma*; *phlegm*, comp. *phlegmatic*; *apophthegm*, comp. *apophthegmatic*.

13. In words of Greek origin, *rh* final, is silent after *r*: as *catarrh*, comp. *catarrhus*; *myrrh*, comp. *myrrhine*.

14. *C* is silent before *z* in the Russianized Greek word *czar*, and its derivatives.

Such are the orthographical principles relating to silent letters in English. The author of an English spelling-book should be guided by them more or less, although he may not find it expedient to state them in form.

## HOW PLANTS GROW.

"CONSIDER THE LILIES OF THE FIELD, HOW THEY GROW; THEY TOIL NOT, NEITHER DO THEY SPIN: AND YET I SAY UNTO YOU, THAT EVEN SOLOMON IN ALL HIS GLORY WAS NOT ARRAYED LIKE ONE OF THESE."—Matthew vi: 28, 29.

"OUR LORD's direct object in this lesson of the Lilies was to convince the people of God's care for them. Now, this clothing of the earth with plants and flowers,—at once so beautiful and so useful, so essential to all animal life,—is one of the very ways in which HE takes care of his creatures. And when Christ himself directs us to consider with attention the plants around us,—to notice how they grow,—how varied, how numerous, and how elegant they are, and with what exquisite skill they are fashioned and adorned,—we shall surely find it profitable and pleasant to learn the lessons which they teach.

"Now this considering of plants inquiringly and intelligently is the study of BOTANY. It is an easy study, when pursued in the right way and with diligent attention. There is no difficulty in understanding how plants grow, and are nourished by the ground, the rain, and the air; nor in learning what their parts are, and how they are adapted to each other and to the way the plant lives. And any young person who will take some pains about it, may learn to distinguish all our common plants into their kinds, and find out their names.

"Interesting as this study is to all, it must be particularly so to Young People. It appeals to their natural curiosity, to their lively desire of knowing about things; it calls out and directs (i. e. educates) their powers of observation, and is adapted to sharpen and exercise, in a very pleasant way, the faculty of discrimination. To learn *how to observe* and *how to distinguish things* correctly, is the greater part of education, and is that in which people otherwise well educated are apt to be surprisingly deficient. Natural objects, everywhere present, and endless in variety, afford the best field for practice; and the study when young, first of Botany, and afterwards of the other NATURAL SCIENCES, as they are called, is the best training that can be in these respects. This study ought to begin even before the study of language. For to distinguish *things* scientifically (that is carefully and accurately) is simpler than to distinguish *ideas*. And in NATURAL HISTORY the learner is gradually led from the observation of things, up to the study of ideas or the relations of things.

"This book is intended to teach Young People how to begin to read with pleasure and advantage, one large and easy chapter in the



open Book of Nature ; namely, that in which the wisdom and goodness of the Creator are plainly written in the **VEGETABLE KINGDOM.**"

Such is the introduction to the most charming little work on Botany we have ever seen. It is just such a book as we have been wishing for always. Nothing to be compared to it as a text-book for beginners in any science has appeared since "Conversations on Chemistry," more than fifty years ago ; and, admirable as that was, and for many years the best text-book ever made, this is still better. It is equally natural, familiar, and simple ; and it is written by a person more profoundly and thoroughly acquainted with Botany than even Mrs. Marcet was with Chemistry.

The quotation we have made is a fair specimen of the style, and of the earnest and reverential feeling and philosophical tone of thought by which it is distinguished.

In reference to one of the purposes for which a good elementary education is desirable, — preparation for the duties and enjoyments of life, — there is no study so important in our Schools, and none in which our omissions are so striking as the study of Natural History, particularly Botany. The greater part of the population even of Massachusetts is engaged in agricultural pursuits ; and to all persons so engaged the knowledge of the nature of plants is of essential necessity ; and there is scarcely any man of intelligence to be found, whatever may be his present occupation, who does not hope, some time or other, to indulge in the luxury of a farm, or at least of a garden. Even if one has only the pleasure of cultivating a few plants in a front yard or on a stand in a parlor, how much the enjoyment derived from their care and cultivation is enhanced by a knowledge of the wonders of their structure, and of the curious processes of their growth. Every child has a natural love of flowers. To every one a flower garden is a delightful place. The original meaning of paradise is a garden ; and the imagination even of Milton could conceive of nothing else than a garden for the happy residence of the first innocent pair. Nothing more delightful, as the employment of intelligent innocence, than the cultivation of a garden. Man was first placed in a garden to keep it and till it.

It is constantly said, and universally admitted, that the great end of education is to call out, mature, and train the various powers of

the mind. And in what other way can the powers of observation and comparison be so well, so naturally, and so pleasantly educated, as by the process recommended by Dr. Gray: the study first of Botany, and afterwards of the other branches of Natural History? Thousands of teachers have come to the conclusion that there is no other; and they have longed to know how the work of teaching this pleasant branch of study should be introduced. Look where they would, there was no suitable text-book to be found. There were reprints of foreign introductions to Botany; but, besides that, they were often made by persons, like Priscilla Wakefield, not profoundly versed in the sciences. All their examples were taken from foreign plants, — most of them different from any that could be known to the teacher. Some of the most popular, even of the recent text-books, were written by persons so profoundly ignorant of Botany, as not even to be acquainted with the Natural Orders.

But here we have a text-book exactly suited to the purpose, clear and attractive, illustrated by very many and excellent figures, and written by a scholar of whom Sir Wm. Hooker, Director of the Royal Gardens at Kew, and as competent a judge as any person who writes in the English language, says: "Professor Gray has a thorough knowledge of his subject; he is a successful teacher, a lucid and accurate writer, and a most careful compiler and analyst.\*" Of Dr. Gray's First Lessons, Sir Wm. says it is "both scientific and simple, and as perfectly suited to its object as any work of the kind we have seen.\*" He had not seen this little work which has since been written, and which is even better suited to its object, and more simple and attractive than the "First Lessons."

The structure of plants is one of the beautiful works of God; so full of wisdom, of exquisite contrivance and admirable adaptation, on a simple, grand, uniform plan, yet with inexhaustible diversities and deviations, that it seems to have been contrived on purpose to attract and employ the powers of the most intelligent amongst his creatures, and to reward them for all the attention they may give to the study.

So beautiful is it, and so rich is the satisfaction felt in comprehending its principles, and such views does it give of unbounded

\* Hooker's Journal of Botany, vol. ix, p. 155.

resources of power, adapted in ways so simple as to come within human comprehension, that it would deserve to be recommended to the investigation of every rational being, even if it served no other use than that of exercising the faculties and exalting the conception of wisdom and benevolence.

But its principal obvious recommendation is its *usefulness*. A knowledge of the structure and functions of the parts of plants, — of Vegetable Physiology, — is the real and only certain foundation for improvements in the culture and management of plants. Most persons have no leisure or opportunity to become familiarly acquainted with the resources of the art of the gardener. They must get a knowledge of the principles which lie at the foundation of that art, so as to be able to carry a slight acquaintance with methods of culture as far as possible, and make it a substitute for more intimate knowledge.

Besides the pleasure and the use of a knowledge of the beautiful laws of the structure of plants, another recommendation of the study is the *insight it gives into the connection between the vegetable and the animal and mineral kingdoms*, a connection which is only of late fully brought to light, but which every child will rejoice to be made acquainted with. Dr. Gray shows this connection by giving a “clear idea of the purpose which plants were created to fulfil in the world, and how they do it.” He goes on to show in a plain and intelligible manner how plants imbibe or drink in from the soil and air the moisture which they feed upon, and which always contains in solution earthy matter and the other materials of which plants are formed. All these materials plants draw from the mineral world; and, when drawn in, they assimilate them and turn them into their own substance. Nothing in the way of lessons can be more beautiful than the chapter in which Dr. Gray shows that, in doing this, plants *purify the air for animals, make all the food which animals live upon, furnish the medicine and most of the clothing of man, his utensils, tools, and building materials, supply all the fuel in the world, and furnish, directly or indirectly, all the light, except what comes directly from the sun, and also supply the materials for the natural warmth of the bodies of animals.*

“In learning, as we have done, How Plants Grow, and Why they Grow, have we not learned more of the lesson of the text

placed at the beginning of this book, and of the verses that follow? "*Wherefore, if God so clothe the grass of the field, shall he not much more clothe you? . . . Therefore, take no thought, saying, What shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed? For your heavenly father knoweth that ye have need of all these things.*" And we now perceive that causing plants to grow is the very way in which He bountifully supplies these needs, and feeds, clothes, warms, and shelters the myriads of beings He has made, and especially *Man*, whom he made to have dominion over them all."

Dr. Gray next proceeds to show how plants are classified and named, and how they are to be studied.

All that precedes classification is given in the clearest and most luminous style, within the space of ninety-two pages, and all this most precious and essential knowledge may be taught to any class of children who are able to read fluently, and by any careful teacher, however little acquainted, previously, with the subject of Botany. It will only be necessary for him to study diligently and make himself master of the lesson he is going to teach, so that he may, while the lesson is given, look into the eyes of his pupils, and through their eyes into their understanding, instead of looking into the text-book.

Nothing can give a better idea of systematic arrangement than the study of the classes, sub-classes, orders, sub-orders, genera, species, and varieties, in which plants are classified. As a part of the furniture of the mind, as a model to be imitated in the arrangement of the business of practical men, or the objects of thought of studious men, a familiar knowledge of this method would be worth all the study which could be required to master it. Faithful regard to it would make a man methodical.

To teach this method successfully, and to show a class how to study and name plants, and how to use Dr. Gray's Popular Flora, will require more study and more careful preparation, by far, than the earlier part of the volume. To a resolute teacher, however, it will not be a difficult thing; it will only need time and forethought. Preparation for this teaching may be made at any season of the year. The lessons themselves should be given in spring or summer, when, for the excellent drawings in the book, still more excellent, fresh, living specimens of flowering plants may be substituted. Those



selected by the author as examples to illustrate the mode of study, are plants easily found, such as the Crowfoot or Buttercup, the Marsh Marigold, the Morning Glory, and the Lily of the Valley. By the examination of these, the general principles of structure and the processes of growth are shown, and the way opened for the study of the common species and families of the plants of the more common orders in the United States.

The remainder of the volume is occupied with a Popular Flora, — a classification and description of the common plants of the country, both wild and cultivated, under their Natural Orders. The examples given as introductory, the familiar descriptions, and the excellent engravings, make this part intelligible and very useful. With so much knowledge of the Natural Orders as is given here, every person living in the country, and indeed every person who wishes to know anything about plants, should be acquainted. So much as is given in this volume ought to be taught in every school in city and country.

In many parts of Germany every teacher of a common school is expected to be acquainted with the elements of Music, so far as to teach singing, and to play upon some instrument. That is very well; and it is to be hoped that the time will come when every teacher of a common school in New England will be able to teach Music. But a far more important qualification, and one more desirable, would be a knowledge of Botany, so that each teacher might be able to become acquainted himself with the plants about him, and to make his pupils acquainted with them. This excellent little volume places this most desirable attainment within the reach of every teacher. Much is said, and with reason, of the neglect of bodily exercise in the schools, both by teachers and pupils. The study of Botany will give the teacher a motive for exercise, which, so far as he is concerned, will put an end to the objection. A daily walk in pursuit of specimens to explain, or of new plants to study, will, through all the pleasant seasons of the year, from the time the first buds begin to open till the last leaves are fallen, give a kind of exercise and of recreation better suited than, perhaps, any other, to refresh and invigorate the mind and the body of the weary teacher. In favorable circumstances he will take with him those pupils who are sufficiently advanced, and these will then at the same time be

learning the elements of natural science, and be enjoying the air, the exercise, the sunshine, and the change which master and scholar alike need.

In future articles we may give additional reasons for the study of Botany in our schools, and show how room may be made and time found for the study.

E. B. G.

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### THE GOVERNOR'S MESSAGE.

THE Governor's Message is always an important document. It presents a combined view of the condition and interests of the Commonwealth, by one whose office it is to make these his study, and who has peculiar advantages for arriving at correct results. As the communication of the head of the government, and of one who represents the majority of the citizens, it may commonly be regarded as foreshadowing the policy and action of the party in power, and as expressing what is or will be the pleasure of the sovereign people. The recent message of Governor Banks has been received with general and great favor. We do not, however, refer to it at all as politicians, but as the friends of education. On this subject, it contains very important statements and suggestions, which we take pleasure in quoting :

"It is sufficiently to the credit of the common schools to say, that they maintain their high character. There has been a marked improvement in the condition of the Normal Schools, and in their capacity for public service. A similar remark, though less within my own knowledge, can be made of other departments of education. The expenditure of the past year, for educational purposes, was \$1,474,488. The number of children between five and fifteen years of age, is 223,304; of whom 218,198 have been in attendance upon the schools during the year, showing an increase in attendance of 15,167 pupils on last year. The school fund, from which our system of schools is supported, is about one million five hundred thousand dollars. The Board of Education, and the Secretary of the Board, in their Reports, earnestly recommend the increase of the fund to the sum of three million dollars, as a measure indispensable to the full success of the common school system; and I commend these papers to your consideration with a most hearty concurrence in this opinion. The public school fund was established when we had less than half our population, and much less than half our present wealth. The system is no longer an experiment. The advantages we have already derived are far greater than was then anticipated; but it is far from a perfect school that we have established. I should reluctantly assent to the increase of the school fund were it to be exhausted in expensive buildings, but other and better results will follow. Less and better mental training will be applied, physical development be made to accom-

pany intellectual attainment; and, through the instrumentality of agents, the people may be induced to visit their children and to support the teachers, in school. The success of the Normal School will lead to other practical and professional schools. The visitors of the Normal Schools report, that in some the average age of students upon entering, is twenty-one years. But we should remember, that while the Normal Schools instruct a few hundred, and the Colleges, for which I bespeak your favorable consideration, educate a thousand more, there are a half million persons in the Commonwealth, under twenty-one years of age, who must seek their scholastic training in the Public Schools alone."

The source from which the means may be derived for this most eminently desirable increase of the School Fund, is thus stated:—

"Since the adjournment of the Legislature of last year, the supreme court has entered a decision which confirms the title of the Commonwealth to lands in the Back Bay, embracing an area of about one hundred acres. The same decision has established the prerogative title of the State to all channels and flats within its jurisdiction, below the line of private ownership—a property of greater ultimate value than the Back Bay lands, but not presently available.

"Contracts for filling about one-half of the Back Bay lands have been made; a part of the work is completed, and other parts rapidly advancing. Sales of land and contracts for sales, to the extent of 387,000 superficial feet have been made, for which \$492,000 is paid and to be paid. For details of the transactions, I refer you to the Commissioners' Report, which I transmit.

"The question of immediate interest is, what disposition shall be made of the proceeds of sales of land, which will bring to the treasury, within five years, at a moderate estimate, from three to five million dollars. An overflowing treasury is prolific of unwise legislation. If the state were burdened with public debt, I should unhesitatingly recommend its application as a primal duty, to that object; but it has none for which provision is not made; and I regard its application to the temporary debt, or to meet a deficit occasioned by excess of expenditures over income, as unjustifiable and unnecessary. I trust the legislature will be able to make provision for the application of this property to such public educational improvements as will keep the name of the Commonwealth forever green in the memory of her children; and to this end I earnestly recommend, for reasons already stated, that the first public charge to be made upon this property shall be for the enlargement of the public school fund until it net the sum of THREE MILLION DOLLARS."

Let all the friends of education, all who desire the best good of the rising and of future generations, the highest and most permanent prosperity of the Commonwealth, so express their concurrence in this judicious recommendation, their earnest desire for this great measure, as to secure the accomplishment.

Another suggestion of the Governor, educational in its character, though somewhat less directly, is also worthy of very attentive and favorable regard:

"The Secretary of the Board of Agriculture, upon his own volition, and without public expense, has commenced and nearly completed, within the year past, a collection of specimens, illustrative of the natural history of the State. The idea, creditable alike in conception and execution, is suggestive of scientific enterprizes of greater moment, than a chance collection crowded into the vacant rooms of the capital. Ought not Massachusetts in the flush of wealth and power, to provide for the most complete illustration of her own natural history, or at least blend her efforts with the co-operative power of individuals, associations, and institutions, partially or

altogether devoted to natural science, for the initiation of a work, the commencement of which would shed additional lustre on her name; and the continuation of which, from age to age, until in her museum of nature, should be found correct representations of every form of inorganic and organic life, would enable her instructed people to trace the separate stages of existence through all mutations, from nothing to Deity. Neither the means, the occasion, nor the agents are wanting for its complete success. The natural history of the Commonwealth, except in a few departments, where individual energy and genius have accomplished great results, is almost entirely undeveloped and unrepresented. Other States, and the continent offer to our researches regions mostly yet unexplored. Even where inquiry has begun, nothing is exhausted. We have also private and public associations devoted to science, collections of specimens that would honor European cabinets, not publicly exhibited, enthusiastic young men to follow the career of Humboldt and Audubon, in pursuing wisely directed inquiry; and among individual devotees of science, we have the first naturalist of the age to direct their labors: one who has withstood imperial solicitation, and declined the chair of science which the death of Cuvier leaves yet vacant, choosing rather citizenship and scientific labor among the American people. The world would wish such an enterprise success."

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### HOME EDUCATION.

"OUR CHARLIE, AND WHAT TO DO WITH HIM," is the title of a little book by Mrs. H. B. Stowe, published by Phillips, Sampson & Co., containing amusing and useful stories for little children, which are prefaced by some excellent remarks about "Charley's business," and "what is to be done with him?" The best recommendation of this little book will be a few extracts:

"When the blaze of the wood-fire flickers up and down in our snug evening parlor, there dances upon the wall a little shadow with a pug nose, a domestic household shadow—a busy shadow—a little restless specimen of perpetual motion, and the owner thereof is '*Our Charley*.'"

"Has he not ships to build and to sail? and has he not vast engineerings to make ponds and docks in every puddle or brook, where they shall lie at anchor? Is not his pocket stuffed with materials for sails and cordage? He inspects toy-shop windows, gets up flirtations with benevolent shopmen; and when he gets his mouth close to papa's ear, reveals to him how Mr. So-and-so has a locomotive that will wind up and go alone—so cheap too—can't papa get it for him? And so papa (all papas do) goes soberly down and buys it, though he knows it will be broken in a week.

"Then what raptures! The dear locomotive! the darling black



chimney sleeps under his pillow that he may feel of it in the night, and be sure when he first wakes that the joy is not evaporated. He bores everybody to death with it as artlessly as grown people do with their hobbies ; but at last the ardor runs out. His darling is found to have faults. He picks it to pieces to make it work better ; finds too late, that he can't put it together again ; and so he casts it aside, and makes a locomotive out of a broken wheelbarrow and some barrel staves.

"Do you, my brother, or grown-up sister, ever do anything like this ? Do your friendships and loves ever go the course of our Charley's toy ? First, enthusiasm ; second, satiety ; third, discontent ; then picking to pieces ; then dropping and losing ! How many idols are in your box of by-gone playthings ? And may it not be as well to suggest to you, when you find flaws in your next one, to inquire before you pick it to pieces, whether you can put it together again, or whether what you call defect is not a part of its nature ? A tin locomotive won't draw a string of parlor chairs, by any possible alteration, but it may be very pretty for what it was made for. Charley and you might both learn something from this.

"Charley's business career, as we have before intimated, has its trials. It is hard for him to find time for it ; so many impertinent interruptions. For instance, there are four hours of school, taken out of the best part of the day ; four mortal hours, in which he might make ships, or build dams, or run railroad cars, he is obliged to leave all his affairs, often in very precarious situations, and go through the useless ceremony of reading and spelling. When he comes home, the house-maid has swept his foremast into the fire, and mamma has put his top-sails into the rag bag, and all his affairs are in a desperate situation. Sometimes he gets terribly misanthropic ; all grown people seem conspiring against him ; he is called away from his serious avocations so often, and his attention distracted with such irrelevant matters, that he is indignant. He is rushing through the passage in hot haste, hands full of nails, strings, and twine, and Mary seizes him and wants to brush his hair ; he is interrupted in a burst of enthusiasm, and told to wash his hands for dinner ! or perhaps, a greater horror than all, company is expected, and he must put on a clean new suit, just as he



has made all the arrangements for a ship-launching down by the swamp.

"Ah, the child is father of the man! When he gets older he will have the great toys of which these are emblems; he will believe in what he sees and touches—in house, land, railroad stock—he will believe in these earnestly and really, and in his eternal manhood nominally and partially. And when his Father's messengers meet him, and face him about, and take him off his darling pursuits, and sweep his big ships into the fire, and crush his full-grown cars, then the grown man will complain and murmur, and wonder as the little man does now.

"What is to be done with our Charley? Yes, that is the question! The fact is, there seems to be no place in heaven above, or earth beneath, that is exactly safe and suitable, except the bed. While he is asleep, then our souls have rest; we know where he is and what he is about, and sleep is a gracious state; but then he wakes up bright and early, and begins tooting, pounding, hammering, singing, meddling, asking questions, and, in short, overturning the peace of society generally, for about thirteen hours out of the twenty-four.

"Every body wants to know what to do with him—every body is quite sure that he can't stay where they are. The cook can't have him in the kitchen, where he infests the pantry to get flour to make paste for his kites, or melts lead in the new saucepan. If he goes into the wood shed, he is sure to pull the wood pile down upon his head. If he be sent up garret, you think for a while that you have settled the problem, till you find what a boundless field of activity is opened amid all the packages, boxes, bags, barrels, and cast-off rubbish there. Old letters, newspapers, trunks of miscellaneous contents, are all rummaged, and the very reign of Chaos and old Night is instituted. He sees endless capabilities in all things, and is always hammering something, or knocking something apart, or sawing or planing, or dragging boxes or barrels in all directions to build cities, or laying railroad tracks, till every body's head aches, quite down to the lower floor, and every body declares that Charley must be kept out of the garret.

"It is true, that if entertaining persons will devote themselves to him exclusively, reading and telling stories, he may be kept in a

state of quiescence ; but then this is discouraging work, for he swallows a story as a dog does a piece of meat, and looks at you for another, and another, without the slightest consideration, so that this resource is of short duration ; and then the old question comes up, What is to be done with him ?

“ But, after all, Charley is not to be wholly shirked, for he is an institution, a solemn and awful *fact* ; and on the answer of the question, What is to be done with him ? depends a future. Many a hard, morose, and bitter man has come from a Charley turned off and neglected—many a parental heartache has come from a Charley left to run the streets, that mamma and sisters might play on the piano, and write letters in peace. It is easy to get rid of him—there are fifty ways of doing that—he is a spirit that can be promptly laid for a season ; but if not laid for aright, will come back by and by a strong man armed, when you cannot send him off at pleasure.

“ Mamma and sisters had better pay a little tax to Charley now, than a terrible one by and by.

“ To-day he is at your feet—to-day you can make him laugh, you can make him cry, you can persuade, and coax, and turn him to your pleasure ; you can make his eyes fill and his bosom swell with recitals of good and noble deeds ; in short, you can mould him if you will take the trouble.

“ But look ahead some years, when that little voice shall ring in deep bass tones ; when that small foot shall have a man’s weight and tramp ; when a rough beard shall cover that little round chin, and all the strength of manhood fill out that little form. Then, you would give worlds to have the key to his heart, to be able to turn and guide him to your will ; but if you lose that key, now he is little, you may search for it carefully with tears some other day, and not find it. Old housekeepers have a proverb, that one hour lost in the morning is never found all day—it has a significance in this case.

“ Let Charley stay with you at least some portion of every day. Put aside your book or work to tell him a story or read to him. Of all devices for Charley which we have tried, a few shelves, which may dignify the name of a cabinet, is one of the best. He picks up shells, and pebbles, and stones—all odds and ends ;

nothing comes amiss; and if you give him a pair of scissors and a little gum, there is no end of the labels he will paste on, and the hours that he may innocently spend in sorting and arranging. A bottle of liquid gum is an invaluable resource for various purposes; nor must you mind though he varnish his nose, and fingers, and clothes, so that he do nothing worse. A cheap paint box, and some engravings to color, is another; and if you will give him some real paint and putty, to paint and putty his boats and cars, he is a made man. All these things make trouble—to be sure they do and will—but Charley *is* to make trouble; that is the nature of the institution. You are only to choose between safe and wholesome trouble and the trouble that comes at last like a whirlwind.

“God bless the little fellow, and send us all grace to know what to do with him.”

## Mathematical.

No. 2. — Separate 24 into so many parts that their product shall be the greatest possible.

### GREATEST COMMON MEASURE.

1. By prime factors. The class familiar with separating numbers into their prime factors.

What is a measure of a number? A number that divides another without a remainder. A common measure? One that measures two or more numbers. The greatest common measure? The greatest number that measures two or more numbers. A prime measure? A prime factor of a number. What is the greatest common measure of 12? Improper question; common measure is said only of two or more numbers. Is 2 a measure of 15? It is not. Why not? It is not a prime factor of  $15 = 3 \cdot 5$ . Is 6 a measure of 35? It is not. Why not? 2 and 3, the prime factors of 6, are not prime factors of  $35 = 5 \cdot 7$ . When one number measures another, what is the number measured called? A multiple of the measure. Is 20 a multiple of 6? It is not. Why not?  $20 = 2 \cdot 2 \cdot 5$ , cannot be measured by each of the prime factors of  $6 = 2 \cdot 3$ . Is 6 a measure of 30? It is. Why? The prime factors of  $6 = 2 \cdot 3$ , are prime factors of  $30 = 2 \cdot 3 \cdot 5$ . What condition, then, is necessary for a number to be a measure of another? The measure can contain no prime factor that is not also a prime factor of the multiple. Is 6 a common measure of 15 and 30? It is not. Why not? The prime factors of 6 are not prime factors of 15. Is 6 a common measure of 18 and 30? It is. Why? The prime factors of 6 are prime factors of both 18 and 30. What condition, then, is necessary for a number to be a common measure? A common measure can contain no prime factor that is not a prime factor of all the numbers to be measured. After unity, what is the smallest common prime measure of 12, 18 and 30? 2. Next larger? 3. What other number is a common measure of them? 6. Why should 6 measure them?

If 2 and 3 are common prime measures of them, 6 must measure them; because 2 and 3 are the prime factors of 6. Is there another common prime measure of them? There is not. Have they a common measure larger than 6? They have not. What, then, do you call the 6? Their greatest common measure. Of what factors, then, is the greatest common measure composed? The greatest common measure is the product of all the common prime measures. Find the greatest common measure of 60, 126, and 168, and explain the process.

$$60 = 2 \cdot 2 \cdot 3 \cdot 5.$$

$$126 = 2 \cdot 3 \cdot 3 \cdot 7.$$

$$168 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 7.$$

Common prime measures = 2 and 3.

Greatest common measure =  $2 \cdot 3 = 6$ . Ans.

I separate the numbers into their prime factors: begin with 60, and find that the first prime factor, 2, is a common prime measure of all the given numbers, the next 2 is not, 3 is, 5 is not. The only common prime measures are 2 and 3; therefore, the greatest common measure is  $2 \cdot 3 = 6$ . Ans. Why do you begin with 60? Because it is the smallest number, and no prime factor not found in 60 can be a prime factor of the greatest common measure. Why not take the 7? It does not measure 60.

What is the greatest common measure of 360, 2,700, and 5,040?

$$360 = 2^3 \cdot 3^2 \cdot 5.$$

$$2,700 = 2^2 \cdot 3^3 \cdot 5^2.$$

$$5,040 = 2^4 \cdot 3^2 \cdot 5 \cdot 7.$$

Common prime factors = 2, 3, 5.

Greatest common measure =  $2^2 \cdot 3^2 \cdot 5$

$$= 180. \text{ Ans. }$$

Common prime factors are 2, 3, and 5; their lowest powers in the given numbers, are  $2^2$ ,  $3^2$ , and  $5^1$ .

Therefore, G. C. M. = 180. Ans.

Why take the lowest powers of the common prime factors? Any higher power of any factor would not measure the number that contains only the lowest power of that factor. What number obviously measures them? 10. Also? 9. And? 2. So, by inspection, you find the Ans.  $2 = 10 \times 9 \times 2 = 180$ .

2d. By Division. Give a multiple of 3. 12. Another. 18. Their sum. 30. Their difference. 6. Are 6 and 30 also multiples of 3? They are. 3 times any number added to 5 times the same number gives what? 8 times that number. 7 times any number from 10 times the same number? 3 times that number. Any number of times any number added to or subtracted from another number of times the same number, must give what? Some number of times that number. What is any number of times any number? A multiple of that number. What, then, can you say of adding or subtracting multiples of a number? A multiple of a number added to or subtracted from another multiple of the same number, must give a multiple of that number. Give a multiple of 6. 12. Is any number of times 12 a multiple of 6? It is. Why? Any multiple of 12 must contain the prime factors of 6. Must any number of times a multiple of any number be a multiple of that number? It must, for the same reason. What reason? Any number of times a multiple of a number must contain the prime factors of that number.

Not using their prime factors, how do you find the greatest common measure of 24 and 60? Divide the larger number, 60, by the smaller, 24. Why not add,

$$24)60(2$$

$$48$$

$$—$$

subtract, or multiply? Do n't know. Can the greatest common measure be larger than the smaller number, 24? It can not. Is not 24 the greatest common measure? It is not. Why not?

Ans. 12)24(2. It does not measure 60. How do you know? By trial. Why, then, do you divide the larger number by the smaller? To see if the smaller number is not the greatest common measure. What is the next step? There is a remainder of 12, and I divide the smaller number or last divisor by it. Why? Can't tell. Is 60 a multiple of the greatest common measure? It is. Is 24?



It is. Is 48? It is. What then of the remainder, 12? That must be a multiple of the greatest common measure. Why? A multiple from a multiple must leave a multiple. Can the greatest common measure be larger than 12? It can not. Perhaps it is 12; how can you tell? If it measures 24 and 60 it must be their greatest common measure. If it measures 24 must it not measure the 60. It must. Why?  $60 = \text{two } 24\text{'s} + 12$ . Will the remainder, obtained by dividing any number by another, always measure the larger if it measure the smaller? It will. Why? Because the larger is always equal to some multiple of the smaller, plus the remainder itself. Why, then, do you divide the smaller number by the remainder? Because, if it measures that, it must measure the larger, and so be their greatest common measure. Is 12 their greatest common measure? It is. Why did you not divide the larger number by the remainder? We could just as well. You can in many cases; but try 20 and 96, 8 and 30, the remainders, measure the larger, but not the smaller. What is the reason? The larger contains the prime factors of the remainder, but the smaller does not. Why, then, is it necessary to take the smaller? The remainder may measure the larger, but not the smaller. Find the greatest common measure of 112 and 378. (Which they can generally do and explain.)

3d. By Subtraction. What is the greatest common measure of 234 and 585?

$$\begin{array}{r}
 585 \\
 234 \\
 \hline
 351 \\
 234 \\
 \hline
 117 \\
 0
 \end{array}
 \qquad
 \begin{array}{r}
 234 \\
 117 \\
 \hline
 117 \\
 117 \\
 \hline
 0
 \end{array}
 = \text{G. C. M. Explain the process.}$$

(Which they can do.)

The explanation for three or more numbers, gives them little or no trouble by either method.

"What is the greatest common measure of 1,633, 3,763, 4,757 and 4,189?"

$$\begin{array}{r}
 1,633 \overline{) 3,763} \\
 3,266 \\
 \hline
 497
 \end{array}
 \qquad
 \begin{array}{r}
 4,757 \\
 3,266 \\
 \hline
 1,491 \\
 1,491 \\
 \hline
 0
 \end{array}
 \qquad
 \begin{array}{r}
 4,189 \\
 3,266 \\
 \hline
 923 \\
 497 \\
 \hline
 426
 \end{array}
 \qquad
 \begin{array}{r}
 1,633 \\
 1,491 \\
 \hline
 142
 \end{array}$$

Explain process.

$426 = 6.71 \quad 142 = 2.71$   
 Ans. = 71) 497 (7 —."

*Math. Monthly, No 1.*

4th. Algebraic quantities. If the learner understands perfectly well the methods just given, monomials present him no difficulty; polynomials, in elementary works, but little. Find the greatest common measure,  $m$ , of any two quantities of which

$$\left. \begin{array}{l}
 A = \text{the greater,} \\
 B = \text{" smaller,} \\
 \frac{A}{B} = Q + \frac{R}{B} \\
 A = BQ + R \\
 A - BQ = R \\
 \frac{A}{m} - \frac{BQ}{m} = \frac{R}{m}
 \end{array} \right\}$$

Suppose  $B$  is contained in  $A$ ,  $Q$  times with a remainder  $R$  — freeing from denominators and dividing by  $m$ , we see that  $\frac{A}{m} = \text{an integral quantity,}$   
 $\frac{B}{m}$  or  $\frac{BQ}{m} = \text{an integral quantity; therefore, their}$   
 difference, which is equal to  $\frac{R}{m}$ , must be an integral quantity; that is, the remainder from dividing the greater by the smaller, must always be a multiple of the greatest common measure. If the first remainder is *not* the greatest common measure, one can be found that is, as in arithmetic.

Find the greatest common measure of any two polynomials, of which,

$a b c d$   $M$  = the greater,

$a b e f$   $N$  = " smaller,

in which  $a$  = the product of all the common numerical prime factors.

$b$  = " " " " " " literal " "

$c$  = " " " " " numerical prime factors found in the greater,  
not in the smaller.

$e$  = " " " " " " " found in the smaller,  
not in the greater.

$d$  = " " " " " literal " " found in the greater,  
not in the smaller.

$f$  = " " " " " " " found in the smaller,  
not in the greater.

$M$  and  $N$  = polynomial factors, having a common polynomial factor.

What is the first step? Take out all the common numerical and literal prime factors, and set them aside as factors of the greatest common measure. What have you remaining? The polynomials,  $c d M$ , and  $e f N$ . Can you divide  $c d M$  by  $e f N$ ? Can not. Why not? The factors  $e f$  are not factors of  $c d M$ . Can you not multiply  $c d M$  by  $e f$  and then divide? Can not. Why not? That would make  $e f$  common to both, and therefore factors of the greatest common measure, when they should not be. If  $c$  and  $d$ ,  $e$  and  $f$ , are not common factors, have not  $M$  and  $N$  the same greatest common measure that  $c d M$ , and  $e f N$  have. They have. What then is the second step? Suppress in each polynomial all the numerical and literal factors that are not common. Why can you do that? If they are not common they can not be factors of the greatest common. What is the next step? Find the greatest common measure of  $M$  and  $N$ . Suppose, on account of their coefficients, the first term of  $N$  will not exactly divide the first term of  $M$ ? Multiply  $M$  by the coefficient of the first term of  $N$ , or by some number that will render the first term of  $M$  exactly divisible by the first term of  $N$ . Will not that affect their greatest common measure? It will not. Why not? It does not introduce a common factor. Is it necessary to multiply? It is not. Why do you do it? To avoid fractional coefficients in the division. If the remainder contains monomial factors, why must you suppress them? They are not common factors. How do you know that? All the monomial factors, common and not common, have been taken out of the given polynomials.

E. H.

Note. The class is always supposed to have studied each method, one day at least, without assistance.

E. H.

A GOOD anecdote of Professor Agassiz is told in a new volume in press. The Professor had declined to deliver a lecture before some lyceum, or public society, on account of the inroads which previous lectures, given by him, had made upon his studies and habits of thought. The gentleman who had been deputed to invite him, continued to press the invitation, assuring him that the society was ready to pay him liberally for his services. "That is no inducement to me," replied Agassiz; "I cannot afford to waste my time in making money."

# Resident Editor's Department.

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## MASSACHUSETTS TEACHERS' ASSOCIATION.

THE Directors of this Association held a meeting at the rooms of the Massachusetts Teacher, on Saturday, January 8th, for the transaction of business relating to the finances of the Association.

Upon the motion of Mr. Kneeland of Roxbury, a Committee was appointed to obtain an appropriation from the State to assist in forwarding the objects of the Association.

This Committee consisted of Messrs. Admiral P. Stone, of Plymouth; D. B. Hagar, of Jamaica Plain; and Josiah A. Stearns, of Boston.

Upon motion of Wm. E. Sheldon, of W. Newton, the Committee were authorized to distribute copies of the Mass. Teacher, and the transactions of the Association, in furtherance of the objects for which they were appointed.

Mr. Charles Hammond, of Groton, offered the following five resolutions, the first of which was adopted, and the others were laid upon the table to be acted upon at the next meeting :

1. *Resolved*, That the Secretary of the Association shall keep a record of all the votes and transactions of the meetings of the Board of Directors in a book procured for that purpose; and that the first business in order at each meeting of the Board, shall be the reading of the minutes of the last meeting. It shall also be the duty of the Secretary, unless ordered otherwise by a special vote of the Directors, to cause the minutes of each meeting of the Directors to be published in the Mass. Teacher.

2. *Resolved*, That, as the Finance Committee are at present charged with the service of publishing the Massachusetts Teacher; they shall keep the items of income and expenditure, relating to the publication of said Teacher, separate and distinct from the other finances of the Association.

It shall be their duty to cause a Journal of all expenditures to be kept; and as often as once in three months, this Journal shall be posted or ledgerized in such a manner, as to show how much has been paid in the previous quarter for paper, for printing, for editing the Teacher, for regular office work, and for all miscellaneous expenses and services.

The Finance Committee shall examine quarterly, the subscription book, and ascertain the receipts from that source. They shall also keep a separate account of the receipts and expenses of advertising in the Teacher, and ascertain the quarterly income from that department.

At the close of the year they shall present to the Board of Directors a general summary of the quarterly receipts and expenditures for the year, together with all the assets and debts relating to the publication of the Massachusetts Teacher.

3. *Resolved*. That it is expedient for the Board of Directors to appoint an Auditing Committee of three of its members, whose duty it shall be to examine all the items of expenditure and income relative to the Massachusetts Teacher, as often as once in three months, and to make an annual report of their doings to the Board of Directors.

4. *Resolved.* That a meeting of the Directors of this Association shall be held on the Saturday (at 10 o'clock P. M.) preceding the Annual Meeting of the Association, in November next, for the purpose of hearing and acting on the annual reports of the Finance and Auditing Committees, in relation to the Massachusetts Teacher.

5. *Resolved.* That all the funds received from the State for the general objects of the Association, or which may be hereafter received for general and undesignated purposes, be placed in the hands of the Treasurer of the Association, and that no appropriation shall be made from these funds by the Committee of Finance, to pay any debts, or to meet any expense accruing from the publication of the Massachusetts Teacher, unless by vote of the Board of Directors, at a meeting in which a quorum of the members shall be present and voting.

Mr. Sheldon moved a vote of thanks to Mr. Hammond for his long and faithful services as Editor of the Massachusetts Teacher. The resolution was warmly seconded by Mr. Hagar and others, and was unanimously adopted. The board then adjourned *sine die*.

HARVARD COLLEGE.—From the report of Amos A. Lawrence, the Treasurer, it appears that the prosperity of the College has not been materially affected by the commercial disasters of the past year. The Boylston Museum has been completed at a cost of \$50,000. The sum of \$5000, bequeathed by the late T. W. Ward, for the purchase of books, has been received from his executors. Mr. William T. Andrews, on resigning the office of Treasurer, last year, gave the sum of \$2500 to the Plummer fund, having previously given the same amount for the same purpose. Mr. Thomas Lee has given \$350 for the purchase of books for the Alford professorship. A subscription commenced by Wm. Sturgis, John P. Cushing, Thomas Lee, and Jonathan Phillips, of \$5000 each, for the benefit of the Medical department, still remains open. The vast zoological collection of Prof. Agassiz, made from all parts of the world, remains unseen and almost useless, in a temporary building; and the professor, who is devoting his life to the advancement of natural science in this country, has no adequate provision for his support, or means of prosecuting his researches, nor even of preserving the collection, which he offers to the corporation. Were this collection made available, Professor Agassiz believes that he would attract to Cambridge, students even from Europe. The executors of the late Thomas Dowse propose to give \$2000 to rebuild the conservatory in the botanical garden. This department has no adequate source of income, and the chemical department is similarly situated. The receipts of the College for the year have been \$301,041.85, including \$18,244.40 cash on hand at the commencement of the year. The expenditures have been \$275,524.38, and there remains on hand in cash, the sum of \$25,517.47. The salary of the President of the College is \$2500 and his house rent; of Professor Huntington, \$2500, and of most of the other professors \$2200. The amount of property belonging to the College, exclusive of the College and the grounds adjoining, is valued at \$1,009,636.40. Of this amount, \$563,104.85 is in notes and mortgages, and \$168,559.68 in real estate.

WE make the following extracts from the *Annual Reports of the Chief of Police of Boston*: whole number of persons arrested during the year, 19,753; 15,661 males, and 4,092 females; 16,101 foreigners, and 3,652 Americans. 13,904 were furnished with lodgings at the different station-houses; 908 intoxicated persons were assisted home, and 5,128 disturbances quelled without arrest. The aggregate amount of fines imposed upon parties arrested and taken before the criminal courts by the police, during the year, was \$24,934.53, and the aggregate imprisonment imposed by the same courts, was 1,270 years, 9 months. There are in the city 1940 dram shops and saloons, where intoxicating drinks are publicly sold in violation of the liquor law. Of this number, 1,578 are kept by foreigners, and but 362 by Americans. There are 208 houses of ill-fame in the city, so that from these figures it appears that the number of places where liquor is sold is 82 less, and the number of houses of ill-fame 37 less, than in the year previous.



At a meeting of the York County Teachers' Association, Pen., held on the 28th and 29th of Dec., 1858, the following resolution was adopted: "Resolved, that we recommend to the encouragement and support of the teachers of York County, '*The Pennsylvania Teacher*,' '*The Pennsylvania School Journal*,' and '*The Massachusetts Teacher*.'"

ROXBURY.—Mayor Otis in his address to the new city government, bore testimony to the fidelity and ability of teachers, of whom he said they are skilful, competent, trustworthy, and should be liberally paid. While on the one hand, we should not be governed by the general average wages of the State—\$46.63 per month, for male teachers, and \$19.17 for females—neither on the other should we be held to follow the example of Boston, where the wages for male teachers are \$139.75 per month, and for females \$39.74. A more just comparison would be with places similar to Roxbury in position, population, and wealth.

	Male Teachers.	Female Teachers.
Salem pays.....	\$82 00 per month.	\$19 00 per month.
New Bedford.....	73 82 "	26 30 "
Worcester.....	92 00 "	27 74 "
Lowell .....	96 00 "	23 00 "
Cambridge.....	97 50 "	24 93 "
Charlestown.....	100 62 "	24 05 "
Roxbury .....	107 56 "	27 29 "

It thus appears that not a single place in the State, having so large a number of children to educate as Boston, pays so liberally. Roxbury raises a larger amount for each child (\$9) than any of the other places named, except Lowell—higher even than Boston, and the tenth in the whole Commonwealth.

NEW YORK.—An institution for the treatment of inebriates is to be established at Binghamton. The corner stone was laid with impressive ceremonies, on Friday, September 25th, 1858. The foundations of a magnificent edifice, 365 feet long, are placed on an elevated site, overlooking the Susquehanna and Chenango Rivers at their confluence, and in full view of the pleasant and growing town of Binghamton. Two years must be allowed for the completion of the building, and its preparation for the reception of its subjects. About \$50,000 are already subscribed; and the town of Binghamton has nobly, but also sagaciously, given 250 acres of land for the site. The State is expected to give either \$50,000 more, at the next session of Legislature; or, to allow half the income derived from the license tax to be devoted to the support of an institution for the rescue of the victims of the alcoholic drinks, thus introduced into the market. The great amount of interest this institution has awakened already, makes the collection of the funds necessary for its completion very certain.

In 1853 the project of an asylum for inebriates was first publicly and heartily undertaken by Dr. J. Edward Turner, who, without fee or reward, and at his own expense, has devoted himself from that day to this, to the work of arousing and fixing the public attention upon this theme. On Nov. 7, 1855, Rev. Dr. Bellows had the honor of making the first public address in its favor, in the New York Tabernacle, and delivered the address at the laying of the corner stone of the edifice above described.—*Ohio Journal of Education*.

THE *Connecticut Common School Journal*, in an article on "Foolish Economy," says: "When you hear a man uttering his aversion to spending money to educate 'other folks' young ones," you may safely conclude that his father was a man not very liberal in the education of his own; for the educated are invariably the most earnest champions of education. The ignorant grumbler is not aware that nature levies a larger tax on blockheads, than the State has any desire to raise for knowledge. Schools cost something and pay much; but ignorance costs much and pays nothing. Nine-tenths of the insecurity of property in the midst of the rural population is owing to ignorance and its consequent vice. If a farmer loses his grain from his crib, or chickens from the roost, his meat from the cellar, or butter from

the pantry, will he look for it among the intelligent and educated of his neighbors, however humble in their circumstances? Not at all. The foolish growler's corn-crib or orchard is taxed in a single night for the support of ignorance and crime, enough to make his yearly quota for their conversion into knowledge and virtue."

**MAINE.**—The Reform School of this State was opened in November, 1853. It is situated in the town of Cape Elizabeth, near Portland. The farm, containing 160 acres, was presented to the State by the city of Portland. An elegant and suitable building has been erected at an expense of \$75,000. It is under the management of a Board of five Trustees, two of whom vacate their offices each year, in rotation. The number of boys now in the institution is two hundred and twelve who are employed in the manufacture of shoes, bricks, cane seats for chairs, clothing, and the various duties connected with the management of the house and farm. They labour six hours each day, and are in the school-room four hours, the remainder of the time being devoted to sleep, meals, and recreation.

Connected with the school, besides the Superintendent, are a Matron, Chaplain, Assistant Superintendent, three teachers, and such other subordinates as are necessary to carry on the various operations incident to such an establishment.

The success of the institution, since its establishment, has been more flattering than its warmest friends could have anticipated; and although a prejudice has existed against it in distant portions of the State, where its design and operation have not been fully understood, it is hoped that with a better knowledge of these, a more enlightened view of its importance will be manifested, and through its instrumentality, hundreds of lads who are now exposed to temptation and the contaminations of vicious associates, will be saved from a life of vice and crime, and the community from the depredations which inevitably accompany it.

**EDUCATION IN VIRGINIA.**—A teacher from that State writes to the Pennsylvania School Journal as follows:—

"I am a native born son of Virginia, and feel as grateful to her for my existence, as a son *could* to his father, yet I am compelled to say that we are greatly deficient in point of education. Our school system always has been very defective, from the fact that the leading men of the State have been too deeply engrossed in politics and accumulating wealth, to attend to education. Until a few years back, our country has exhibited a sad example of education. The traveller, as he passed, could scarce distinguish our school houses from horse stables. They were generally built in some remote corner, accessible for nobody but a school teacher and his ten or dozen little urchins, who were well trained in ascending cliffs. His school apparatus consisted of a "riten bench" made of a slab, a piece of a clap-board hewed out with the axe, for a ferule, a calabash with a long handle for a dipper, and the rippling brook for a school bucket.

"Long have we been groping our way through the dark valley of ignorance, with scarcely a ray of light to illuminate our dark and weary path. Scarcely has there been any inducement for any one to prepare himself as a teacher. Generally those who have been engaged in teaching, were driven to it as a last resort, and merely obtained enough to keep soul and body together; for, in a majority of cases, those persons who employed teachers were governed by the price they demanded for teaching, and not by their qualifications. Hence, persons were permitted to mould the youthful mind, that were not capable of teaching an ox how to draw the cart.

"But, notwithstanding we have had many difficulties, and have yet many serious obstacles to surmount, we are cheered with the idea, that we are emerging from the darkness which hung around us like the arctic night. We have cast our eyes towards the horizon, and imagine we see, away off in the dim distance, the calm smiling sunbeams of education penetrating the dark chaotic mass, and their rays generating new animation in the cause of education.

"Some of our counties have adopted the free school system, as provided for in the eighty-third chapter in the code of Va. Mason, (the county in which I am laboring,) has, by a vote of two-thirds, concluded to organize and adopt the free school system,

although some of the magnates of the land have exerted themselves, 'teeth and toe nail,' against it. They are afraid that they will have to contribute something in the way of taxes to support our institutions. However, I think the grand and glorious cause of education is being seriously considered, even here in Western Virginia.

"When I read in the School Journal, of your teachers' associations, — where they meet together in one happy group, and exchange their thoughts,—my spirit breathes forth an anxious anticipation to behold such a state of things in Virginia. Truly, fellow-teachers, you enjoy many blessings that we here in Virginia do not realize. Here, the teacher labors from year to year, in his arduous, but responsible avocation, without one word of consolation to cheer and comfort him. If, perchance, he makes a visit, or is visited by a friend, "politics or gold," the all-absorbing topics of the day, are introduced as a basis of conversation; and in order to interest his friend, who has been kind enough to give him a call, he is compelled to turn politician, merchant, or farmer; and his humble calling is not permitted to receive as much as a casual remark. He is left to contrive, invent, and adopt such methods as he can think of alone, — no one to suggest for him the slightest shade of an idea.

"We have many bright sons and fair daughters, whose eyes sparkle with an innate capacity to imbibe useful instruction. All that is necessary for them to rank among the intelligent, is a proper training and a well disciplined mind."

EDUCATION IN TENNESSEE. The New York Teacher contains the following interesting communication: —

"In agricultural and mineral resources, Tennessee is the richest of the southern states. In educational interests she is, perhaps, the poorest. One-fourth of the children of Tennessee can not read. This is owing to a lack of public schools. None but the rich, who are able to send to boarding schools, can educate their children. We have no public schools of any account, except in a few of the larger towns. The rural districts are too sparsely populated. Our institutions of learning are family schools, boarding schools, and colleges. Nearly all our teachers are immigrants from the middle and eastern states. We call them Yankees. Doubtless it is but just to say that the better class of northern teachers is here represented. Nearly all are professional teachers. Still this system of schools does not now, and never can meet the wants of civilization. The masses can never be educated by them, for obvious reasons. The deficiency of this system, which is brought to a good degree of perfection here, should teach the inestimable value of a common school system, making knowledge as free as air. It is more important that the poor be educated than the rich, for they will use the talent, and from this class rise up our statesmen, literati and divines. Let seminaries, colleges, and universities fail if they must; but, under God, let us protect and cherish the People's College, with Public Good for its President, as the true Alma Mater of civilization, the only source of universal intelligence, and the strongest anchor for our ship of State.

"Schools here being private enterprises, each one is an isolated individual, having no sympathy or connection with another. Each strives for patronage, often at the sacrifice of its own usefulness and its neighbor's welfare. *We have no educational journal, — no Normal School. A teachers' association was never known in Tennessee.* There is another error in our system, greater than all, which I mention only that it may be shunned, for I see it dangerously gaining prevalence in northern states. I mean the separation of the sexes, even from infancy. I would like to speak at large upon this, but can not here. Suffice it to say, that the evils which result from it are just such as an enlightened understanding would expect. They are the same evils, in a more aggravated form, which the system aims to prevent. Why separate those who were born together — whose daily intercourse under proper circumstances, would be mutually beneficial, and who are designed for the closest union in after life? Is it not throwing an insult in the very face of nature and of common sense? And does not nature give back a fearful recompense? It is necessary for the health of society that it be an aggregation of men and women — husbands and wives — boys and girls — young ladies and gentlemen. These are the constituents

which nature designed to mingle, in order to give a healthy, moral, and intellectual tone to society. Whether nature or pagan superstition is the wrong, judge ye.

"Allow me to say to those teachers who ask advice with regard to coming South, that teachers here are less respected, labor harder, accomplish less, and net no more dimes than those in the North."

MISSOURI. The number of public school-houses has increased, in three years, from 1,646 to 3,380, and the amount of money raised for building school-houses from \$30,000 to \$130,000.

KENTUCKY. The Roman Catholics of Louisville, led by Bishop Spalding, are making a vigorous effort to secure exclusive control of a portion of the School Fund of that State. Several papers have been discussing the rights involved. Some contend that the schools should be so *secular* that the Catholics would send pupils to them, while others reply that the Roman Catholics are opposed to the whole system of secular education, — opposed to it for the very reason that it is secular, and, therefore, godless; and that they put their opposition on the very ground that it is an infringement of the conscientious scruples and rights of Roman Catholic parents.

GOVERNOR BISSEL, of Illinois, states in his message, that the charitable institutions are in a prosperous condition. During the last year \$100,000 has been expended in the construction of a new Penitentiary at Joliet, and four years' time and a further expenditure of \$450,000 will be required to finish the work, which the Governor believes will surpass in excellence anything of the kind in the United States. The success of the Normal University, established last year, has been very gratifying. The public schools are in a very flourishing condition.

THE Illinois Teacher had a circulation of 1,532 in 1856, 2,040 in 1857, and 2,364 in 1858. Its resident editor, N. Bateman, says: —

"We do not believe there is another state in the Union which has advanced more rapidly in the work of popular education, during the past two years, than ours. Mistakes have been made; our zeal has not always been 'according to knowledge'; we have often been puffed up; many times have we boasted when we ought to have blushed; not seldom have we mistaken mere motion and change for progress; the work has only been commenced — much more remains to be done than has been done; but, nevertheless, very great and substantial progress *has* been made in every department of our field of labor. That this is so, none but the wilfully blind can fail to see; and that the forthcoming report of the State Superintendent will abundantly demonstrate the fact, by the stern logic of statistics and figures, we confidently believe. Let us thank God and take courage."

THE Wisconsin Journal of Education is responsible for the veracity of the following anecdote, taken from its columns: "A candidate for Congress, out West, sums up his 'edication' as follows: 'I never went to school but three times in my life, and that was to a night-school. Two nights the teacher didn't come, and t'other night I had no candle!'"

"THE state of Wisconsin, in addition to a School Fund for the support of common schools, amounting to four millions of dollars, and a University Fund, amounting to five hundred thousand dollars, has set apart one-fourth of the avails of the sale of what are known as "swamp lands," as a fund for normal instruction. The income of this fund for this year, is about eighteen thousand dollars; and is expended by a Board of Regents, for the support of Normal Institutes in colleges, academies, and high schools. This Board proposes to expend the income hereafter, which will soon reach the annual sum of twenty-five thousand dollars, on a more comprehensive and practical scheme, submitted by Hon. Henry Barnard, of Connecticut, embracing a central normal school, normal classes in all higher institutions of learning, county teachers' institutes, state, county and town teachers' associations, and a general normal school agency. Dr. Barnard, having accepted the Chancellor-



ship of the State University at Madison, has, with the consent of the Regents of the University, accepted this agency, for the purpose of organizing the system.

Wisconsin is doing a noble work in the cause of education, from which she cannot fail to reap rich returns. She is fortunate in having secured the services of so able and devoted a laborer as Dr. Barnard, in carrying out her wise provisions for the education of the masses."

INDIANA.—The Delaware Republican is responsible for the following:

"On the Salt Creek Hills, in Lawrence county, they have an original way of choosing teachers. The school is kept during two terms, each three months. Recently, great trouble existed in one of the districts as to who should teach for the fall quarter of the school. The wire-working among the natives was spirited. It was finally decided to put the school up at public auction, and give it for the quarter to the lowest bidder. When the day arrived, a goodly number of aspirants were present. The first bid was one hundred dollars, and down, down it went, until the office was knocked off at seventy-four dollars. The tall form of L. Q. Hoggat claimed and won the prize. H. is now, with birch in hand, fulfilling his contract with the trustees, but swears it is the last teaching he will do, as grammars, arithmetics, geographies, and books generally, have changed since he went to school."

EDUCATION IN UPPER CANADA. To the friends of education among us, as well as our neighbors of Canada, it is matter of congratulation, that, notwithstanding the angry controversy still existing in the province, on educational topics, the spirit of the people abates nothing of its generous activity and fostering care on behalf of the vital interests of education and the prosperity of schools. From the recent ample and voluminous Report of Dr. Ryerson, Chief Superintendent of Education for Upper Canada, we subjoin a few brief extracts, indicating the condition of educational matters in the province, for the year 1857:—

*Common School Moneys*:—Total receipts for 1857, £323,604;—increase on the same for 1856, £34,681. Expenditures for 1857, £303,039;—increase over 1856, £33,512.

*Legislative School Grant*, apportioned to the municipalities, £32,951. The law required an equal sum to be raised by municipal assessment;—sum actually so raised, £61,954,—being £29,002 more than the legal requirement, and an advance of £7,427, on the corresponding amount for 1856.

"*Rate Bills*" for the year 1857, £37,624, against £146,285, raised for "free" schools. Were the former sum raised by a rate on property, all the common schools of Upper Canada would be free. "It is true that less than one-half the schools are actually free; but in a very large proportion of those in which a rate bill on children is imposed, it is very small—almost nominal."

*Amount paid to Teachers*, in 1857, £215,057,—an increase of £20,136, on the corresponding item for 1856.

*Maps and School Apparatus*, amount paid for in 1857, £4,349,—increase over 1856, £1,909.

*School Sites and School Houses*, amount raised and expended, £51,972;—increase over 1856, £9,164. "No legislative aid is given for such purposes: the whole is done by voluntary assessment of municipalities and school sections."

*General Remark*. "As the whole sum mentioned under the head of expenditures of common school moneys, with the exception of the sum mentioned under the head of school rates, was provided by local voluntary assessment or rates, it indicates not only the universally powerful working of this branch of the school system, but the progress of the public mind in a primary element of educational advancement—provision for its support. And when the financial condition of the country is considered, during the last half of 1857—the part of the year during which the greater part of the school rates are levied, and nearly all of them collected—the fact that the receipts and expenditures of the year are more than one hundred thousand dollars in advance of any one of the preceding prosperous years, presents

a remarkable phenomenon in the educational history of Upper Canada, and an extraordinary contrast to its receipts in every other branch of revenue and industry."

*Pupils:* number between fifteen and sixteen years of age attending schools, 247,434; — increase over 1856, 19,442; between sixteen and twenty-one years of age, 25,203; — increase, 2,050; — total in 1857, 272,637; — increase over 1856, 21,492.

*Teachers:* whole number in 1857, 4,083; increase, 394: male, 2,787; female, 1296: whole number holding legal certificates of qualification, 3933; increase over 1856, 478: "first class" certificates, 640; "second class," 2,064; "third class," 962. "It is to be hoped that 'third class' teachers will soon disappear altogether. The number of uncertified teachers reported, was 150." W. R.

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OUR new contrioutors, it is hoped, will not find fault in being invited to take a place in the Resident Editor's Department.

### THE DICTIONARY LESSON.

BY A NEW CONTRIBUTOR.

ONCE on a time a pedagogue began  
To teach defining on a "bran-new" plan;  
He told his pupils every one, to take  
A dictionary of the latest make,  
And read in turn, each one a single word  
And definition; nothing strange occurred  
For several minutes; onward sped the task  
As well as any man could wish to ask.  
At length, a boy read out with eager haste,  
Like one who not an inch of time would waste;  
But what he read, set going all the school  
With merriment; and, though against the rule,  
The master joined the laugh he should have quelled,  
But could not; so he all reproof withheld,  
And only said, with laughter-choking tones,  
"What was it that you read, Josiah Jones?"  
"Aceph, a louse without a head," replied  
The wondering boy, but twice as loud he cried,  
As when at first, he gave the astounding sound,  
That made the fun resistless circle round.  
With mighty effort to control his face,  
The master called upon the next in place  
To read the word that Jones so queerly read.  
It was: "Acephalous, without a head."  
The master then, the dictionary class  
Straightway dismissed, and let the lesson pass.

**THE FRENCH AND ENGLISH FIRST BOOK ; or, the Rudiments of French and English Grammar combined : with exercises for reading and translation.** By DAVIS GREEN HASKINS, Principal of Concord Hall School for young Ladies. Boston : JOHN P. JEWETT & Co., 1858.

**THE AMERICAN JOURNAL OF EDUCATION**, edited by Henry Barnard, L. L. D.

The December number completes the first series of this excellent publication.

This number contains several elaborate articles of great value. We would call attention, especially, to the paper on the "Real Schools of Germany."

This series of the Journal, thus completed, consists of five large octavo volumes, each volume having an average of eight hundred pages, embellished with at least four portraits from engravings on steel, of eminent teachers, educators, and promoters of education, and with a large number of wood-cuts, illustrative of recent improvements in the structure, furniture, and arrangements of buildings designed for educational purposes. It is in itself an educational library. In these volumes, almost every topic of importance relating to the science or art of education, is found discussed in its details. No department of instruction has been neglected.

These *four thousand* well filled pages constitute a store-house of rich materials, adapted to the wants of teachers of every grade,—from the College to the Primary School.

In the publication of this work, Dr. Barnard has conferred a benefit on the cause of education, which it is scarcely possible to over-estimate. No other person in America possesses, or ever did possess, the combination of culture, talent, experience, materials, resources, and the spirit of heroic self-sacrifice, requisite to produce such a work. To collect, arrange, and digest the matter for such a publication, and carry it through the press, is a Herculean task for a single individual to perform. But the dark side of the picture is, that this great work will be a heavy pecuniary loss to the editor, unless teachers come forward and buy it. It costs only \$12.50, neatly bound in cloth. With what face can a teacher, receiving a good salary, say *no*, if asked whether he is a subscriber?

**EDUCATIONAL BIOGRAPHY ; or, Memoirs of Eminent Teachers, Educators, Promoters, and Benefactors of Education, Literature, and Science.** Edited by Henry Barnard L. L. D. *Part I. Teachers and Educators. Volume 1.* United States. *Illustrated Edition.* Price \$3.50.

Mr. Barnard has issued a small edition of the Memoirs of Eminent American Teachers and Promoters of Educational improvement, which have appeared in the first series of the American Journal of Education, on fine paper, illustrated with finely executed portraits, and bound in elegant and substantial binding, as gift-books to teachers. This elegant and useful contribution to educational literature will, we trust, receive a cordial welcome from teachers. Nothing ever issued from the press could be a more appropriate ornament for the teacher's library or centre table. For sale by E. P. Dutton & Co., 106 Washington Street, Boston.

**BLACKWOOD'S EDINBURGH MAGAZINE.**

The January number contains the following articles : Hunger and Thirst ; What will he Do with It, (Continued) ; The Bells of Botreaux ; Debit and Credit ; The Scottish Universities ; The Poorbeak Mutiny ; Beranger ; The first Bengal European Fusileers in the Delhi Campaign.

The American firm Leonard, Scott & Co, New York, pay annually, more than \$3,000 to the British publishers for the matter furnished in five English journals. The price of "Blackwood's Magazine" is \$3.00 per annum.

THE readers of this Journal will please to correct two errors which are found in the January number. On page 31, Professor Russell is reported to have said : "The art of education implies a kind of *musings process*," while he did say, *nursing process* ; and on the 34th and 36th pages the name, Areal, of Boston, is to read, Averill.

## A WORD WITH SUBSCRIBERS.

WHEN you forward money, if a receipt is not returned in the next number of the "Teacher," please to write for one. A receipt is the only business proof of the payment of money. If, by any oversight, after you have paid your subscription, a second bill should be sent, if you will forward your receipt to the office, the account will be corrected, and the receipt returned by returning mail. Every business letter is filed at the office, for future reference.

IN all correspondence respecting the "Teacher," give the post office address. One teacher writes: "Please find enclosed \$1.00 for 'Massachusetts Teacher.' My year commences with May;" neither dating the letter, giving the post office, nor signing it. Fortunate for this correspondent, the stamp on the envelope was plain, and he was the only subscriber in the town, whose subscription commenced with May. A lady returns the January number with simply her name upon the cover, leaving us to examine some thousands of names for the purpose of saying "Stop."

WE have, with the close of 1858, dispensed with all paid agents, and put the responsibility of the subscription list upon the TEACHERS OF MASSACHUSETTS. The Editors of the "Teacher" render their services without compensation. The Finance and Publishing Committee pay their "dollar" like other subscribers, and give most of their otherwise leisure time, gratuitously, to the interest of the "Teacher," and they have come to the conclusion, that if the teachers in the State will not attend to the interests of their own Journal, in their several towns, either the Journal or the teachers *ought to go down*. In many towns the School Committees have decided that a teacher, who has not sufficient general interest to subscribe for and *read* the only journal devoted to the profession in the state, and to pay a single dollar towards its support, has not sufficient professioned interest for their service, and have acted accordingly. In some towns, we have the name of every teacher upon the subscription book; in other towns, the reserved space is still a *blank*. In some towns, the teachers, having secured all in the profession, are making up a list from the parents in their district or town.

It will be gratifying to the friends of the "Teacher" to know, that notwithstanding an unusually large edition of the January number was printed, we have been obliged to reprint this number to supply the demand. Encouraged by this, will not every teacher who proposes to do anything for the Journal the present year, *do it at once*, that we may be able to estimate the size of the edition for the next number.

It is proposed, early in the present year, to publish, under their respective towns, a list of the subscribers to the "Massachusetts Teacher." We trust that every teacher will look well to the honor of his own town in this comparison. Will teachers communicate at their earliest convenience? If they are not prepared to send in their list, they can let us know that they are at work, and can give us some estimate of probabilities. If some one, in each town, will arrange the entire list for the town, designating *new subscribers* by the letter "n," he will confer a very great favor.

As the subscription list is soon to be copied into a new book, we desire to correct all irregularities before making the transfer. Many teachers, whose subscription commences with some month in the year, as May, or October, have forwarded postage stamps for the fractional part of a year, — thus making their subscription commence with the volume, (January.) We earnestly invite *all* to do the same. This irregularity is the cause of many errors. All subscriptions should begin with January.

WILL all who are in arrears for 1858, or more, forward immediately; also please send \$1 for the *pre-payment* of 1859?

ALL unpaid subscriptions for 1858, and previous, are charged \$1.50, according to advertised terms.



THE Finance Committee do not wish to say an unkind word to any: they do not wish to erase one name from the subscription book; but having consented to manage the business department of the "Teacher," during the present year, they do desire and *intend* to conduct it with the care and fidelity which should characterize any personal interest.

IN concluding these miscellaneous items, it may be said that the Committee propose to themselves three definite objects to be accomplished the present year:—

THEY propose (with the consent of the subscribers,) to make the entire subscription list commence with January.

They propose to collect all unpaid subscriptions to the "Teacher," and (with the consent of the subscribers) to write "paid for 1859" against the name of every subscriber, — thus placing the journal at once upon the only true basis of *advance pay*.

They propose (with the consent and co-operation of all true-hearted teachers and friends of education in Massachusetts, and a very great number in other States,) to double the number of subscribers to the "MASSACHUSETTS TEACHER."

WE ask all our present subscribers to take this matter up at once, during the present month, that our *treasury* may be very greatly *relieved*, and our *subscription* book equally *burdened*.

TEACHERS will confer a favor, by sending in, *immediately*, the names of other teachers, or of parents who are known to be interested in the cause of Education, that we may send them a specimen number of the "Teacher," and solicit their subscription.

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1. The accuracy, clearness and brevity of the rules and definitions.

2. The philosophical arrangement of topics, by which the explanation of every intricate principle is given before it is required for the solution of an example.

3. The frequent reference back to first principles, by means of figures and letters, thereby saving repetition, and giving the scholar the benefit of a constant review.

4. Its practical nature.

5. The character of the examples,—they being so clearly stated that the pupil or teacher is never at a loss how to interpret their meaning.

6. The exclusion from the *body of the work* of all mathematical puzzles, and of examples depending upon Algebra or Geometry for their solution.

7. Its *completeness*. The author, in producing his treatise, has rendered the transition from Mental Arithmetic to his work, and from his work to Algebra, so easy and natural, and has so fully discussed all the topics peculiar to Written Arithmetic, as to render the use of another text-book upon the subject superfluous; thus avoiding the useless outlay of money and waste of time incurred by the use of a *series* of books by the same author.

All persons dissatisfied with Arithmetics now in use, are requested to give this work an examination. This, with Colburn's First Lessons, makes an excellent series; and Arithmetic, with these books, is a short, fresh, interesting study.

The following extracts from letters of well-known educationists, prove that the book gives eminent satisfaction:—

From A. P. Stone, Principal Plymouth High School, and President of Mass. State Teachers' Association.

"I regard Eaton's Arithmetic as a work of much merit. The clearness and conciseness of its rules and definitions, and the philosophical arrangements of its different parts, seem to be prominent features that entitle it to favorable consideration. The examples are well adapted to illustrate the principles of the science, and to furnish a course of training most excellent for mental discipline, and a business education. I see no reason why the work does not contain all that is necessary in an arithmetical treatise for our Common and High Schools or Academies."

From Marshall Conant, Principal State Normal School, Bridgewater, Mass.

"I have given Eaton's Arithmetic a thorough examination. I like it much—the matter and arrangement. I consider the author peculiarly successful in presenting the *principles* of the science, and their *applications* at the same time. I would recommend this work to all who are seeking for something on this subject, eminently suggestive. Its typographical execution is of very unusual excellence.

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